

Appl. No. 10/53 01; Docket No. NL 031068 US
Amdt. dated Jul 26, 2006
Response to Office Action dated May 11, 2006

Amendments to the Claims

1. (Cancelled)

2. (Currently Amended) An electric device as claimed in Claim 1, An electric device as recited in Claim 5, wherein a part of the conductive path having said cross-section constitutes a volume of phase change material, the volume having an electrical resistance which is larger than an electrical contact resistance at the first contact area or at the second contact area, independent of whether the phase change material is in the first phase or the second phase.

3. (Cancelled)

4. (Cancelled)

5. (Currently Amended) An electric device as claimed in Claim 4, An electric device with a body having a resistor comprising

a phase change material being changeable between a first phase and a second phase, the resistor having a first electrical resistance when the phase change material is in the first phase, and

a second electrical resistance, different from the first electrical resistance, when the phase change material is in the second phase, the phase change material constituting a conductive path between a first contact area and a second contact area, a cross-section of the conductive path being smaller than the first contact area and the second contact area; and

a heating element arranged in parallel with the resistor, the heating element able to conduct an electric current for enabling a transition from the first phase to the second phase, wherein the heating element has a heating elements electrical resistance has an electrical resistance which is smaller than the first electrical resistance and the second electrical resistance.

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6. (Currently Amended) An electric device as claimed in Claim 5, wherein the heating elements electrical resistance is larger than 0.3 times the minimum of the first electrical resistance or the second electrical resistance. The electrical device as recited in Claim 5, wherein the electrical resistance of the heating element is greater than about 0.3 times the lowest resistance state of the resistor comprising a phase change material being changeable between a first phase and a second phase.

7. (Currently Amended) An electric device as claimed in Claim 3, The electric device as recited in Claim 5, wherein the heating element is in direct contact with the resistor.

8. (Currently Amended) An electric device as claimed in Claim 1, The electric device as recited in Claim 5, wherein the resistor constitutes a memory element, and the body comprises:

an array of memory cells, each memory cell comprising a respective memory element and a respective selection device, and

a grid of selection lines, each memory cell being individually accessible via the respective selection lines connected to the respective selection device.

9. (Currently Amended) An electric device as claimed in Claim 8, The electric device as recited in Claim 8, wherein:

the selection device comprises a metal oxide semiconductor field effect transistor having a source region, a drain region and a gate region, and

the grid of selection lines comprises N first selection lines, M second selection lines, and an output line,

the resistor of each memory element electrically connecting a first region selected from the source region and the drain region of the corresponding metal oxide semiconductor field effect transistor to the output line, a second region of the corresponding metal oxide semiconductor field effect transistor selected from the source region and the drain region and being free from contact with the first region, being electrically connected to one of the N first selection lines, the gate region being electrically connected to one of the M second selection lines.

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10. (*Canceled*)

11. (*Current - Amended*) ~~A method as claimed in Claim 10.~~ The method as recited in claim 12, wherein the main surface has a step profile and the step of reducing the cross-section comprises an anisotropic etching step for forming a sidewall spacer along at least a part of the step profile.

12. (*Current - Amended*) ~~A method as claimed in Claim 10.~~ A method of manufacturing an electric device as recited in Claim 5, the method comprising the steps of:

providing a main surface of a pre-fabricated electric device with a layer of the phase change material, and

reducing a cross-section of a conductive path in the layer between a first contact area and a second contact area, the cross-section being smaller than the first contact area and the second contact area;

wherein a part of the conductive path having said cross-section constitutes a volume of phase change material, and the step of reducing the cross-section comprises the sub-steps of:

providing a resist layer sensitive to electrons,

writing a pattern with an electron beam into the resist layer, the pattern defining at least the volume of the phase change material, and

developing the resist.